

REMARKS

Claims 1-9 and 11-21 are active. Claim 21 is new. Claims 1-9 and 11-20 are subject to restriction made final with claims 1-7, 11 and 13-18 being grouped in Group I, claim 8 being grouped in Group II and claims 9, 12, 19 and 20 being grouped in Group III, with Group I being elected. Claims 1-3, 5-7, 11, 13, 14 and 16-18 are rejected under 35 USC 102 as anticipated by Wang. Claims 4 and 5 are rejected under 35 USC 103 as being unpatentable over Wang in view of Gunner.

Amended claims 1-9, 11-20 and new claim 21 are submitted for the examiner's reconsideration.

Claim 1 is rejected as anticipated by Wang. As amended this claim calls for:

A printable polymer mixture for the preparation of a double layer
comprising a semiconductor layer and a non-semiconductive layer
wherein the mixture exhibits semiconductive properties, the mixture
comprising:
- one or more semiconductive polymers; and
- one or more non-semiconductive polymers;
in a solution comprising a non-electrolytic solvent to form said printable
mixture (underlining added)

Wang does not suggest, much less disclose or anticipate this claim, especially the underlined portion. Wang discloses his materials are in solution with an electrolyte. P. 1053, left col. last line to right col. first line. There is no support or suggestion therein that this electrolyte and the corresponding solution is printable, i.e., has a printable viscosity that results in a useful product. They state that the compounds can be polymerized by oxidation in solutions containing a supporting electrolyte and is silent as having a printable viscosity. Doping during polymerization yields free standing films heavily doped with anions of the supporting electrolyte. Last sentence, page 1053 to first line page 1054.

At page 1058, right hand (RH) col. item c, referring to DSC blends they state that PPy/PC blends are homogeneous (uniform) and the others are heterogeneous

(not uniform). This does not mean that there is a disclosure that the mixture will form two layers, a semiconductor layer and a non-semiconducting layer as claimed or that such a material is printable. They are interested in conductivities. See the abstract first line "Blends of the conducting polymers . . . in the insulating host polymers have been prepared electrochemically. They are interested in polymerization of aromatic compounds by electrochemical oxidation in a supporting electrolyte. P. 1053, left (LH) col. last line.

They repetitively refer to conducting polymers. See p. 1054, L. col. lines 5-6, and last two sentences this col. RH col. lines 4, 6, 12, last sentence of first paragraph stating "the search for new conducting polymer blends seems attractive." See also first sentence of last paragraph RH col.

Applicants have carefully reviewed Wang and fail to find any disclosure that a double layer of a semiconductor and a non-semiconductor layer is produced by a mixture produced by their disclosed processes, much less with a printing process. See also last line, RH col. continuing onto page 1056, LH col. The entire article is concerned with conductive polymers employing electrolytes, not a solvent, which is different in kind for imposing different properties to the mixture. This article's disclosure does not support the formation of a double layer structure as claimed. The disclosed material is not disclosed as forming semiconductive and non-semiconductive layers from a mixture which separate after deposition, since it fails to recognize these layers will separate after time as does applicants' claim. Their disclosure is not relevant to what is claimed.

However, amended claim 1 calls for more. It calls for the material to

"in a solution comprising a non-electrolytic solvent to form said printable mixture"

Wang does not disclose such a non-electrolytic solvent forming the claimed mixture. See applicants' disclosure page 2, lines 16-18, and claim 4 for examples of the solvent, which are not electrolytes, which form different mixture properties. Wang does not disclose such solvents alone for the mixture or that the mixture is printable as claimed in amended claim 1.

The Action cites Gunner for disclosing such solvents. Gunner is cited in respect of claims 4 and 5. Claim 4 claims particular non-electrolytic solvents. However, Gunner is bootstrapped to substitute its solvent for that of the Wang electrolyte contrary to the teaching of Wang and contrary to the need in Wang for such a solvent and its purpose in the Wang composition. Gunner is improperly selected by using applicants' disclosure as a guide via improper hindsight. Gunner does not disclose or suggest that a double layer will be formed from the Wang mixture as claimed using the solvents as claimed in claim 4 and as claimed in amended claim 1. Gunner does not go so far and does not disclose it is useful with Wang. That is applicants' contribution and not that of Gunner. Gunner discloses formation of the various layers as separate layers one layer at a time which contradicts claim 1 amended. This is a teaching away, the antithesis of obviousness.

For example, Gunner pages 2 and 3 [0017], refers to the deposition from a solution a further layer of material comprising organic conductive or semiconductive material (a single layer and not a double layer as claimed). In Gunner [0018] an electrode further layer is deposited (a single layer and not a double layer as claimed). See also Gunner [0044] to [0046] for deposition of various layers (all single layers and not a double layer as claimed). No double layer of semiconductive and non- semiconductive layer is disclosed as being formed from a mixture as

claimed and thus there is no motivation to one of ordinary skill to substitute the solvent of Gunner for the electrolyte of Wang. The disclosed Gunner layers as disclosed are formed individually and not by a mixture and there is no suggestion therein to do otherwise.

The fact that solvents might be disclosed by Gunner is not relevant. The Gunner reference is not suggested by Wang or any other cited reference of record, but if at all, only by applicants, and wherein it is improper to use applicants disclosure as a guide to sift through the myriad of potential references to find one that might meet a particular need as suggested by applicants. The combination of such a solvent with Wang without the electrolyte of Wang is not suggested by Gunner or Wang, but by applicants. Also the mixture must be printable as claimed in amended claim 1. This requires a printable viscosity as claimed in certain of the claims, e.g., claim 7. See page 2, lines 27-32 of applicants' specification. As the mixture is printed the polymer separates forming the double layer of amended claim 1. Neither reference suggest a printable mixture that requires the necessary viscosity as claimed. To be printable, the mixture must have a desirable viscosity irrelevant to the cited references. There is no recognition of these properties in the cited references.

This combination of references as asserted by the Action would reconstruct the disclosure of Wang in a proscribed manner and still does not suggest a printable mixture. See the MPEP. It is improper to reconstruct a reference so as to change the principle of operation of the reference. To combine Gunner with Wang would change the principle of operation of Wang and Gunner, which is proscribed by MPEP 2143.02 VI.

Also, neither reference suggests the problem addressed by claim 1, which is to provide a printable mixture wherein two layers are printed by merely printing the claimed printable mixture which forms the two layers. This provides a reduced manufacturing cost not recognized by either reference. Solving a problem is part of the as a whole inquiry of examining a claim. MPEP 2141.02 III. The claimed invention as a whole must be considered. MPEP 2141.02 I. The proposed modification of Wang to use the solvent of Gunner instead of an electrolyte as disclosed would render Wang unsatisfactory for its intended purpose and is proscribed. MPEP 2143.02V. There must be a suggestion, desirability and motivation to make the suggested combination. MPEP 2143.01

None of the cited references, Wang or Gunner, individually or in combination, disclose that the claimed mixture when deposited would yield two layers, a semiconductive layer and a non-semiconductive layer. None disclose that the claimed mixture separates after deposition into two distinct and different layers as claimed. That is applicants' contribution and not that of the references. The results are not predictable. MPEP 2143 A and B. For these reasons claim 1 is believed allowable.

New claim 21 calls for:

wherein the semiconductive and non-semiconductive polymers separate from one another after deposition on the substrate forming separate and discrete semiconductor and non-semiconductor layers on the substrate

This is not shown by Wang or Gunner and is unobvious thereover. For these reasons this claim is believed allowable.

The remaining claims depend from claim 1 and are believed allowable at least for the same reasons as well as for the particular structures claimed such as

viscosity in claim 4 and the formation of an electronic component as in others of the claims.

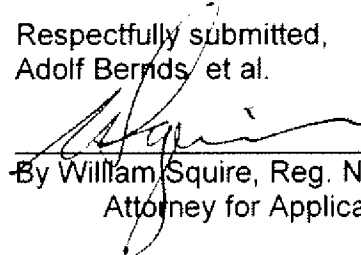
Applicants respectfully request that the restriction should be withdrawn and all claims examined on the merits as claim 1 has been shown to be allowable over the cited references of record and includes a common special allowable technical feature comprising the non-electrolyte solvent not disclosed or made obvious by the cited Wang or Gunner references for reasons discussed above.

Since claims 1-9 and 11-21 have been shown to be in proper form for allowance, such action is respectfully requested.

There is no additional fee due for the added claim. While no fee is believed due for this paper, the Commissioner is authorized to charge any fee that might be due for this paper or credit any overpayment to deposit account 03 0678.

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